

Ocular Screening System

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An ocular screening system developed at MSFC is helping to detect vision abnormalities and diseases—some of which can lead to blindness if left untreated—in children as young as 6 months of age. The technology, developed by the late John Richardson, formerly the biomedical applications manager for the Technology Transfer Office, and Joseph H. Kerr, an engineer in the Space Systems Chief Engineer's Office, involves simply photographing the children's eyes and analyzing the patterns of light reflected from them. As different eye abnormalities and diseases cause the eyes to reflect light in different ways, each abnormality has a reflection "signature," thus permitting immediate diagnosis of a problem.

In a statewide test of more than 170,000 Alabama elementary school students in kindergarten through second grade, more than 10 percent were found to have eye diseases or defects requiring medical attention (fig. 122). The difficulties ranged from simple nearsightedness and farsightedness to much more serious diseases that required immediate treatment if the children's vision were to be saved. The tests were conducted under license by the Birmingham, Alabama-based, Vision Research Corporation. Funding for the testing was provided by the State of Alabama (\$600,000), the Russell Corporation (\$100,000), and the Alabama Power Company (\$100,000)—approximately \$4.70 per child.



FIGURE 122.—A student being tested using the ocular-screening system.

The results of the 1994-95 school year Alabama testing have impressed the education commissioners in 24 other states, which are now following Alabama's example and scheduling testing of their own school children. Since vision abnormalities can affect a child's performance and self-esteem in school, educators hope students whose eye defects are detected and corrected as a result of the test will earn better grades, improve his or her comprehension of subject material, and enjoy a better quality of life—both while in school and after graduation.

Sponsor: Office of Commercial Development and Technology Transfer

Industry Involvement: Russell Corporation, Alabama Power Company

Other Involvement: State of Alabama

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